

## PATENT COOPERATION TREATY



## PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>SMC 60546/WO</b>		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. <b>PCT/GB 03/03679</b>	International filing date (day/month/year) <b>22.08.2003</b>	Priority date (day/month/year) <b>20.09.2002</b>	
International Patent Classification (IPC) or both national classification and IPC <b>H05K3/10</b>			
Applicant <b>AVECIA LIMITED et al.</b>			
<p>1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of    sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I    <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II   <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V   <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand  <b>13.02.2004</b>		Date of completion of this report  <b>28.12.2004</b>	
Name and mailing address of the International preliminary examining authority:  <b>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</b>		Authorized Officer  <b>Batev, P</b> Telephone No. +49 89 2399-7970 	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/GB 03/03679**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-11 as originally filed

**Claims, Numbers**

1-19 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-19
	No: Claims	none
Inventive step (IS)	Yes: Claims	1-19
	No: Claims	none
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	none

**2. Citations and explanations**

**see separate sheet**

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**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: US-A-5 721 007 (HENNENHOEFER EARL ET AL) 24 February 1998 (1998-02-24)
- D2: US-A-5 270 368 (LENT ET AL.) 14 December 1993 (1993-12-14)
- D3: US-A-4 270 985 (LIPSON ET AL.) 2 June 1981 (1981-06-02)

1. The present invention relates to a process of making an electronic device, in particular a printed circuit board, and such a device.
2. The object of the invention is to provide a method which improves the definition and density of the circuitry and saves cost by minimizing the use of photo-resist.
3. Document D1, which is considered to represent the most relevant state of the art, discloses a process comprising the steps of
  - applying a non-aqueous plate-resistant ink by ink jet printing to selected areas of a dielectric substrate,
  - exposing the plate-resistant ink to actinic radiation to effect polymerisation,
  - adding a metal layer by electrolytic deposition, the upper layer being an etch-resistant metal,
  - removing the polymerised plate-resistant ink with alkali.

The solution proposed in claim 1 consists in and is distinguished over this known process in that the plate-resistant ink is solvent-free, has a viscosity not greater than 30 mPa.s at 40°C and comprises:

- A) 30 to 90 parts acrylate functional monomers free from acid groups comprising mono- or higher functionality wherein 5 to 95% by weight are mono-functional monomers; and
- B) 1 to 30 parts acrylate functional monomer containing one or more acid groups, all parts by weight.

The subject matter of claim 1 appears, therefore, novel (Article 33(2) PCT).

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4. Document D2, which is related to an etch-resistant ink for ink jet printing, discloses inks having a viscosity not greater than 30 mPa.s. However, all disclosed inks comprise a solvent. Moreover, document D2 does not disclose or suggest to use the inks for printing a plate-resistant mask.

Document D3 relates to inks suitable for screen printing.

In view of the available prior art, the subject matter of claim 1 appears, therefore, to involve an inventive step (Article 33(3) PCT).

5. Independent claim 18 is directed to an electronic device obtained by the inventive process of claim 1. Its subject matter is, therefore, considered also new and involving an inventive step (see also the Guidelines, paragraph A5.26).

6. Claims 2 - 17 and 19 which define preferred embodiments of the invention are dependent on claims 1 and 18, respectively, and as such also meet the requirements of the PCT in respect of novelty and inventive step.

7. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 - D3 is not mentioned in the description, nor are these documents identified therein.

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